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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,260	03/31/2004	Mark S. Isenberger	42P17808	9840

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN  
12400 WILSHIRE BOULEVARD  
SEVENTH FLOOR  
LOS ANGELES, CA 90025-1030

EXAMINER
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NGUYEN, VIET Q

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/816,260

Applicant(s)

ISENBERGER ET AL.

Examiner

Viet Q. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed on 11/14/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,8,9,11,12,14-23 and 25-32 is/are rejected.
- 7) ☒ Claim(s) 2-7, 10, 13 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

1. Claims **1-32** are present for examination.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims **1, 8-9, 11-12, 14-23, & 25-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Windlass et al (US Publication 2005/0106760, serial No. 10/713,307, filing date of Nov.14, 2003)**.

Regarding claims **1, 8, & 9, Winlass et al (see Fig. 3, also para [0031])**, has already shown the use of a ferroelectric polymer material (34), with its aligned "ferroelectric domains", under the effects of applied electrical field (4) for being used as the claimed "polymer ferroelectric memory device". Paragraph [0026] mentions that a "heat chuck 38", see Fig. 3, directly coupled to the substrate material (32) from said ferroelectric memory device (34) for heating such ferroelectric material, thus obviously act functionally as the claimed "on-chip heater", and paragraph [0011] also discloses that such polymer material comprises of "***polyvinylidene fluoride***" or "***polyvinylidene fluoride trifluorethylene copolymer***" as obvious design choices.

Regarding claims **11, 19-23**, both Figs. 1 & 2 shows the steps for programming such polymer memory device by “**heating**” such polymer material at least above the Curie temperature (i.e., see para [0012]), “***maintaining the heating step***” for a time period between approximately 2 and 600 minutes (i.e., see para [0014]), and then “**cooling**” it down (i.e., see para [0018]).

Regarding claim **12**, para [0018] teaches that electric field is applied to align the domains ***while the material is cooling down from above the Curie temperature.***

Regarding claims **14-16 & 25-26**, paragraph [0011] also discloses that such polymer material comprises of “polyvinylidene fluoride” or “polyvinylidene fluoride trifluorethylene copolymer” as obvious design choices.

Regarding claims **17-18 & 27-28**, para [0014] mentions that the heating range and Curie temperature is approximately between 130°C and 150°C as recited.

Regarding claims **19-20 & 29-30**, para [0014] mention the time duration between at least 2 minutes up to 600 minutes, which obviously include the claimed ranges.

Regarding claims **31**, para [0004] discloses that during “**annealing/heating**” step, the electrodes are initially used for heating thus also obviously “initialize” such polymer memory device for aligning its domains under applied electric field.

Regarding claim **32**, it is noted that this reference does not specifically mention the word “refreshing” step. However, para [0012] mention that the purpose of such “annealing/heating” is to “**free**” the previous dipole alignments, if any, of all existing domains within such polymer material, thus obviously suggests to one skilled in this art that such polymer memory device could be both “**initialized**” and/or “**refreshed**” into its

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original or “free” alignment state so that any future programming or specific dipole alignment under a new applied E. field can be carried out for the benefits of new memory programming/alignment state.

Finally, regarding possible different methods for ‘heating’ such polymer memory device, para [0012] cites some of the choices could be, but not limited to, i.e., ***“directly” applying heat to the polymer material, the substrate, or both with the heating element***. Thus, one having ordinary skill can infer from the above statement that any heating element”, ***be it on-chip or off-chip***, could have been similarly utilized without further complication and/or deviations from the teaching of this publication.

4. Other claims are objected as being dependent upon rejected base claims, however contain following allowable subject matter for features that are either not shown or seen elsewhere:


- Claims **2-3, 13, & 24** add the use of a “temperature detector/sensor”;
- Claims **4-7** recite the use of “**metal** heaters” using metal traces to supply the heating current to the substrate;
- Claim **10** adds a “diametric” layer, which is not seen in the cited arts.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Viet Q. Nguyen whose telephone number is (571) 272-1788. The examiner can normally be reached on 7am-6pm (EST).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
V. Nguyen  
12/17/2005



VIET Q. NGUYEN  
PRIMARY EXAMINER